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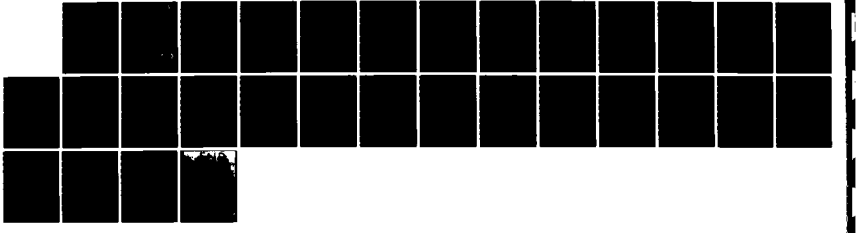

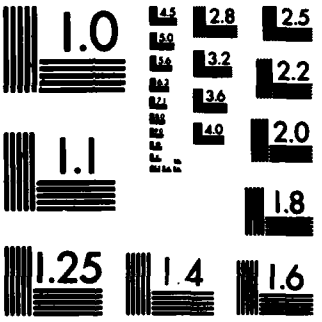

AN ARCHAEOLOGICAL RECONNAISSANCE SURVEY OF THE PROPOSED CHICAGO & NORTHWESTERN RAILROAD BRIDGE MODIFICATION BLUE EARTH COUNTY, MINNESOTA

CONTRACT NO. DACW37-81-M-1710

September 25, 1981

Impact Services, Inc.
P. O. Box 3224
Mankato, Minnesota 56001

Prepared for
St. Paul District
Army Corps of Engineers
U. S. Post Office Building
St. Paul, Minnesota

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This is a report of the results of a reconnaissance-level cultural resource survey conducted for the Army Corps of Engineers, St. Paul District, in connection with the Mankato Flood Control Project. The area surveyed will be affected by proposed modification to the Chicago & Northwestern Railroad Bridge over the Blue Earth River just south of Mankato, Minnesota.

The purpose of this survey was to determine if any cultural resources exist in the project area that might be affected by the proposed bridge modification.

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The survey included both a review of pertinent records and a field examination of the project area by means of surface reconnaissance and shovel testing.

The records check revealed that only one recorded site is located in the general vicinity of the project area. However, this site should not be adversely affected by the proposed bridge modification.

Field examination of the area indicates that it has been severely disturbed in the past by construction of a railroad right-of-way, an industrial plant, a city park and a residential district. Surface reconnaissance and shovel testing produced no evidence of disturbed or intact archeological resources in the area to be affected.

The results of the survey indicate that no cultural resources will be affected, damaged or destroyed by the proposed bridge modification.

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This is a report of the results of a reconnaissance-level cultural resource survey conducted for the Army Corps of Engineers, St. Paul District, in connection with the Mankato Flood Control Project. The area surveyed will be affected by proposed modifications to the Chicago & Northwestern Railroad Bridge over the Blue Earth River just south of Mankato, Minnesota.

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Introduction

The following is a report on the results of a reconnaissance-level cultural resource survey of the proposed Chicago & Northwestern Railroad Bridge modification planned by the Army Corps of Engineers, St. Paul District, as part of the Mankato Flood Control Project (Contract Number DACW37-81-M-1710). The survey was conducted for the Corps of Engineers by Impact Services, Inc. on June 8, 1981. All field notes, maps and other materials pertinant to this project are curated at the offices of Impact Services in Mankato, Minnesota.

Project Area

The project area is located in the Northwest 1/4 of the Southeast 1/4 of Section 14, Township 108 North, Range 27 West, Blue Earth County, Minnesota (see Figure 1). Presently, the Chicago & Northwestern Railroad bridge crosses the Blue Earth River close to its confluence with the Minnesota River, approximately 1/4-mile north (downstream) of Trunk Highway 66. The proposed modifications will result in the bridge being relocated approximately 150 feet north of its present location. The area surveyed at the request of the Corps of Engineers extended 150 feet north and 150 feet south of the current bridge, and 300 feet back from the riverbank on the east and west sides of the river (see Figure 2).

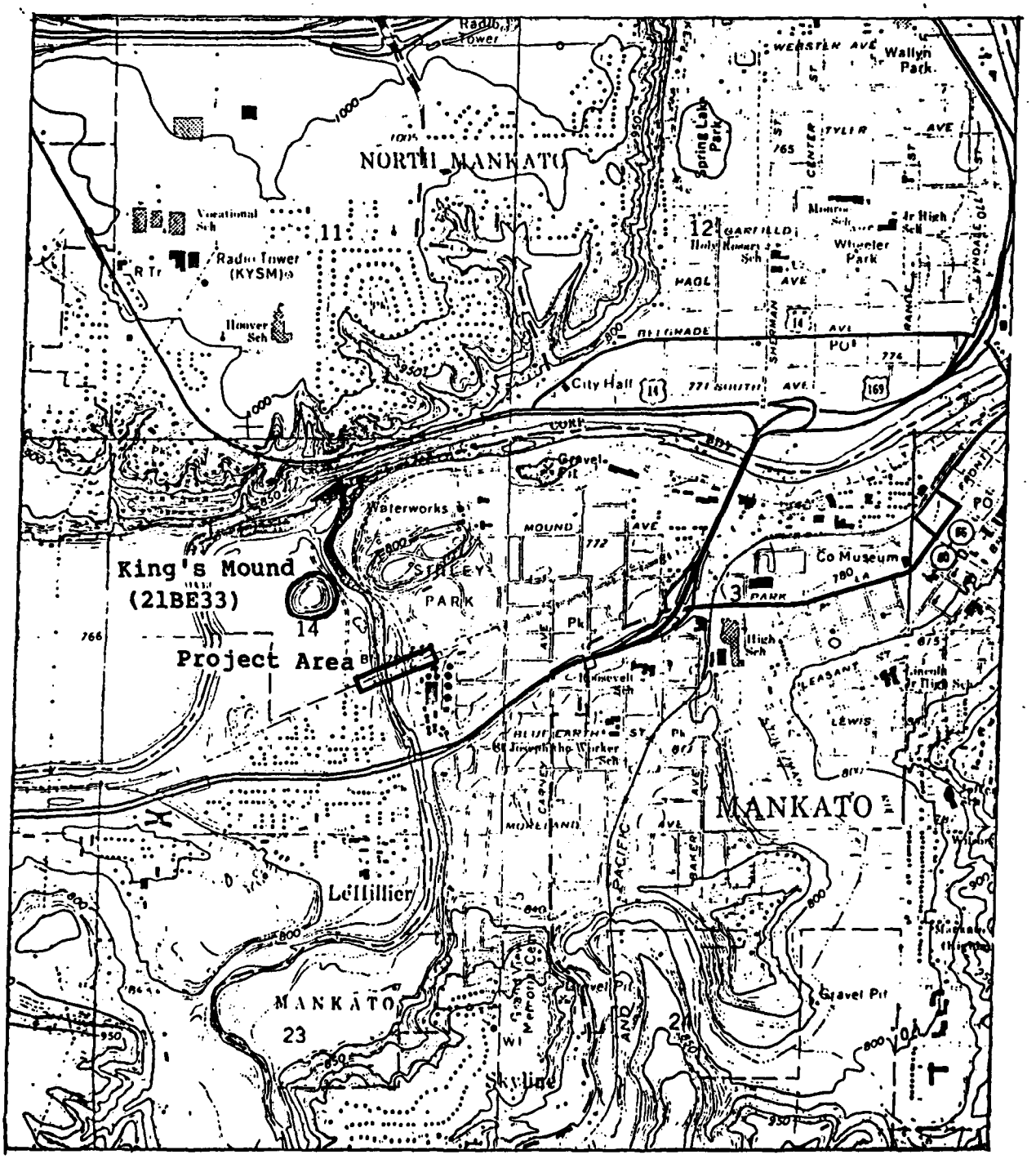
Environmental Setting

The project area lies on the extreme northern edge of Blue Earth County, about 2000 feet southeast of the confluence of the Blue Earth and Minnesota Rivers. The most important factor in the formation of the county's topography was the passage of the Des Moines lobe of the late Wisconsin glaciation. Although the area was touched by earlier glacial advances, Des Moines morainal deposits obscure older evidence of glacial activity in most parts of the county.

Both the Blue Earth and Minnesota Rivers are currently underfit streams, which flow through valleys cut by glacial meltwaters. Until the implementation of modern flood-control measures, the broad bottomlands in these deeply-cut valleys were subject to yearly inundation. The soils that are found in the project area reflect this fact: they are classified as "unconsolidated alluvium", recently deposited and subject to occasional to frequent flooding (Paulson 1978:12-14). These alluvial deposits frequently are up to 10 feet thick and are underlai. by a thick deposit of glacial till over limestone.

In terms of vegetation, Blue Earth County lies in a

Figure 1. General Location of Project Area



(Taken from U.S.G.S. Mankato West Quad, 1974)

Scale: 1 inch = 2000 feet

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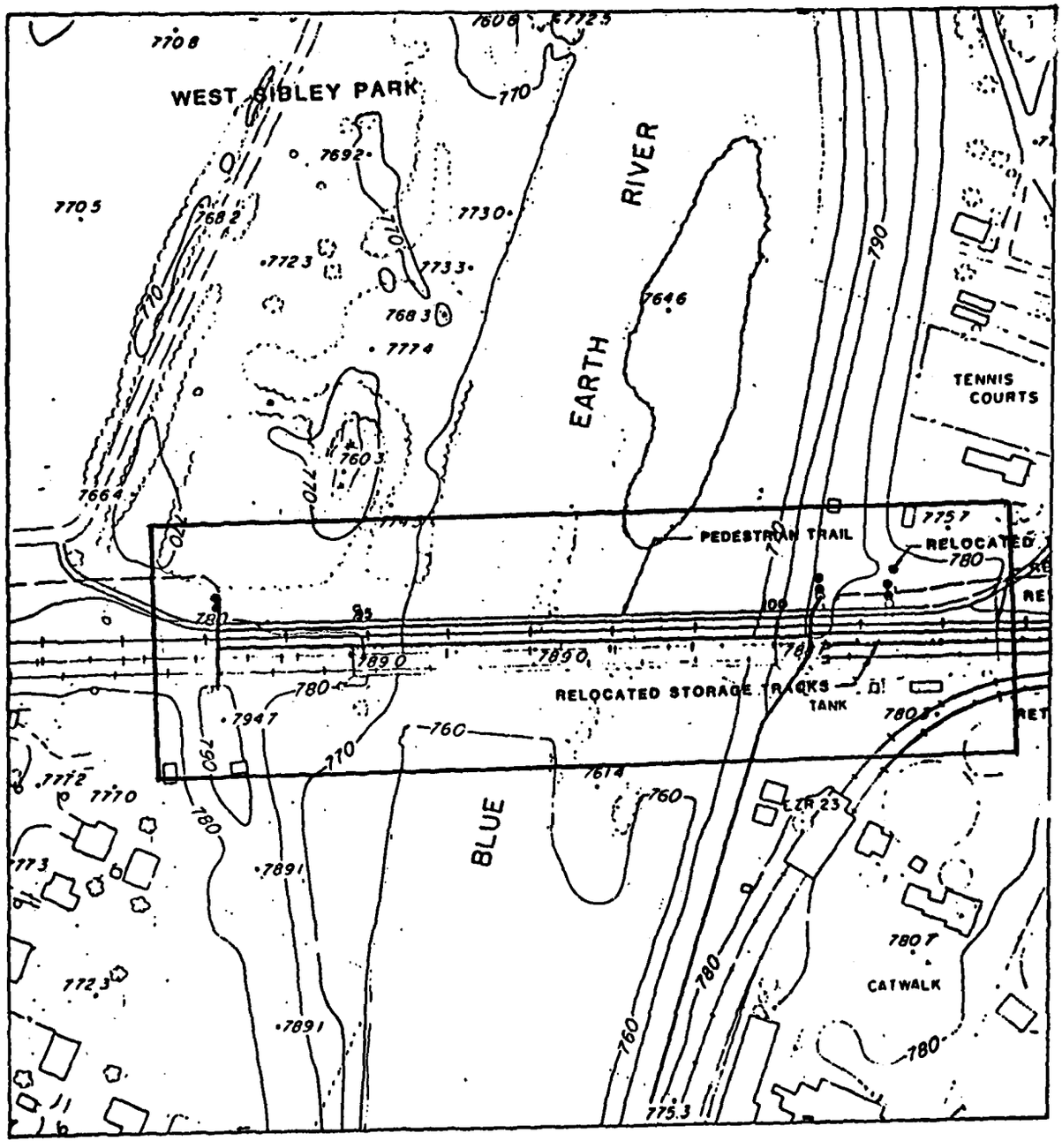
Figure 2. Area of Proposed Bridge Modifications



(Taken from Army Corps of Engineers Design Memorandum No. 8)

Scale: 1 inch = 200 feet

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transition zone between the Big Woods to the north and east and the long-grass prairie to the south and west. The exact boundary between these two zones apparently shifted periodically due to the influence of post-glacial climatic fluctuations. At the time of contact, the riverbottom areas were characterized by stands of elm, basswood and aspen, with the better-drained upland areas tending towards scattered oak openings and stands of prairie grasses such as the bluestems.

Cultural Overview

The Minnesota River Valley and surrounding terrain have been found in the past to contain numerous cultural resources. All of the four major divisions of Upper Midwest prehistory (Paleo-Indian, Archaic, Woodland and Mississippian) are represented - tentatively, in the case of the Paleo-Indian - by sites in the area.

The date and extent of the earliest occupation of south-central Minnesota have yet to be established. Occupation of the region during the Archaic Period is definite, but a scarcity of identified Archaic sites has prevented any in-depth understanding of the cultural patterns and processes of the time.

The Woodland and Mississippian Periods are better-known from a number of sites along the Minnesota River and on nearby streams and lakes. During the Woodland Period, occupations seem to have been oriented toward smaller streams and lakes where there was an abundance of animal and plant resources to exploit. Fishing and hunting of deer, bison and small game were important subsistence practices. There is also evidence that at least by the Middle Woodland Period, native plants such as amaranth were being selectively managed and provided a large portion of the food supply.

The Hopewellian-generated burial mound tradition was of obvious importance, as evidenced by the hundreds of mound groups and single mounds noted by early European travellers and settlers in the area. The preferred locations for these mounds were apparently on high points of land overlooking waterways, very often on the bluffs 100 to 200 feet above the Minnesota River. The ceramics of this period also suggest some contact with the peoples of the Havana tradition in Illinois and eastern Iowa. The exact nature of this relationship, however, is still unclear.

The Late Woodland Period in southern Minnesota is often termed "Mississippian". While established Woodland lifestyles seem to have persisted in many parts of the region, there is abundant evidence that the Mississippian culture, which arose in the American Bottoms, exerted considerable influence on cultural patterns in southern Minnesota. This influence is strongly reflected in ceramic styles such as Cambria and Blue Earth, which are characterized by shell tempering and trailed curvilinear design motifs. It can also be seen in subsistence practices.

since it is during this time that exotic domesticates such as corn and beans appear as agricultural staples.

The occupation sites that reflect these Mississippian characteristics also demonstrate a shift in preferred settlement location. They are virtually all located on the high terraces and bluffs above major river valleys. (One exception to this is the Plains Mississippian pattern known as Great Oasis, which appears to have been lake-oriented.) But the influence of Mississippian culture seems to have faded relatively quickly, perhaps in conjunction with the onset of climatic changes which discouraged a dependence on agriculture for subsistence. At the cime the earliest European visitors arrived in southern Minnesota, natives groups appeared to be relying on hunting as a major subsistence practice, supplemented by some limited horicultural activity.

Literature Search

A review of pertinant records and literature revealed no known cultural resources within the project area itself. There are, however, a number of recorded sites in the general vicinity of the proposed bridge modification.

State site records include a number of sites in Township 108, Range 27. These sites include three mound groups recorded by Winchell (1911:98-99) in Sections 7, 23 and 13 (these are mentioned as "formerly" extant), a Mississippian village in Section 21, habitation sites of indeterminate cultural affiliation in Sections 25 and 26, and the historic French fur post Fort L'Hillier in Section 26. None of these sites is close enough to the project area to be affected by bridge modification activities.

There is currently only one recorded site in the same township, range and section as the project area. This is 21BE33 (King's Mound), a multi-component habitation site which is located in the SE 1/4 of the NW 1/4 and the SW 1/4 of the NE 1/4, Sec. 14, T. 108N, R. 27W. The site was initially located in 1975, during the course of an archaeological reconnaissance survey of areas to be affected by the Mankato Flood Control project (Strachan & Roetzel 1975:36-48). Cultural material recovered during testing of the site includes lithic tools and debris, ceramics, bone material and charcoal. Diagnostic artifacts are indicative of a multi-component site, occupied during the Archaic, Middle Woodland and Late Woodland/Mississippian periods. (The location of this site in relation to the project area is indicated on Figure 1.)

Field Methodologies

There were two methodologies utilized during this survey: surface reconnaissance and shovel testing. The specifics of each

procedure are described below. Information about their exact application in the project area appears in the following section.

Surface reconnaissance: This method consisted of visual examination of the ground surface by crew members separated by a 15-meter interval. In areas where leaf litter and other loose vegetal debris obscured the surface, that material was carefully cleared away by trowel or hand so that the surface was fully exposed. These cleared areas were approximately 1 meter square, and occurred at intervals of no more than 15 meters, where needed.

Shovel testing: These tests were 30 cm. by 30 cm., dug in 10 cm. artificial levels. All backdirt was processed through 1/4-inch wire mesh screens. Shovel tests were dug to sterile soil and refilled upon completion.

Application of Methodologies

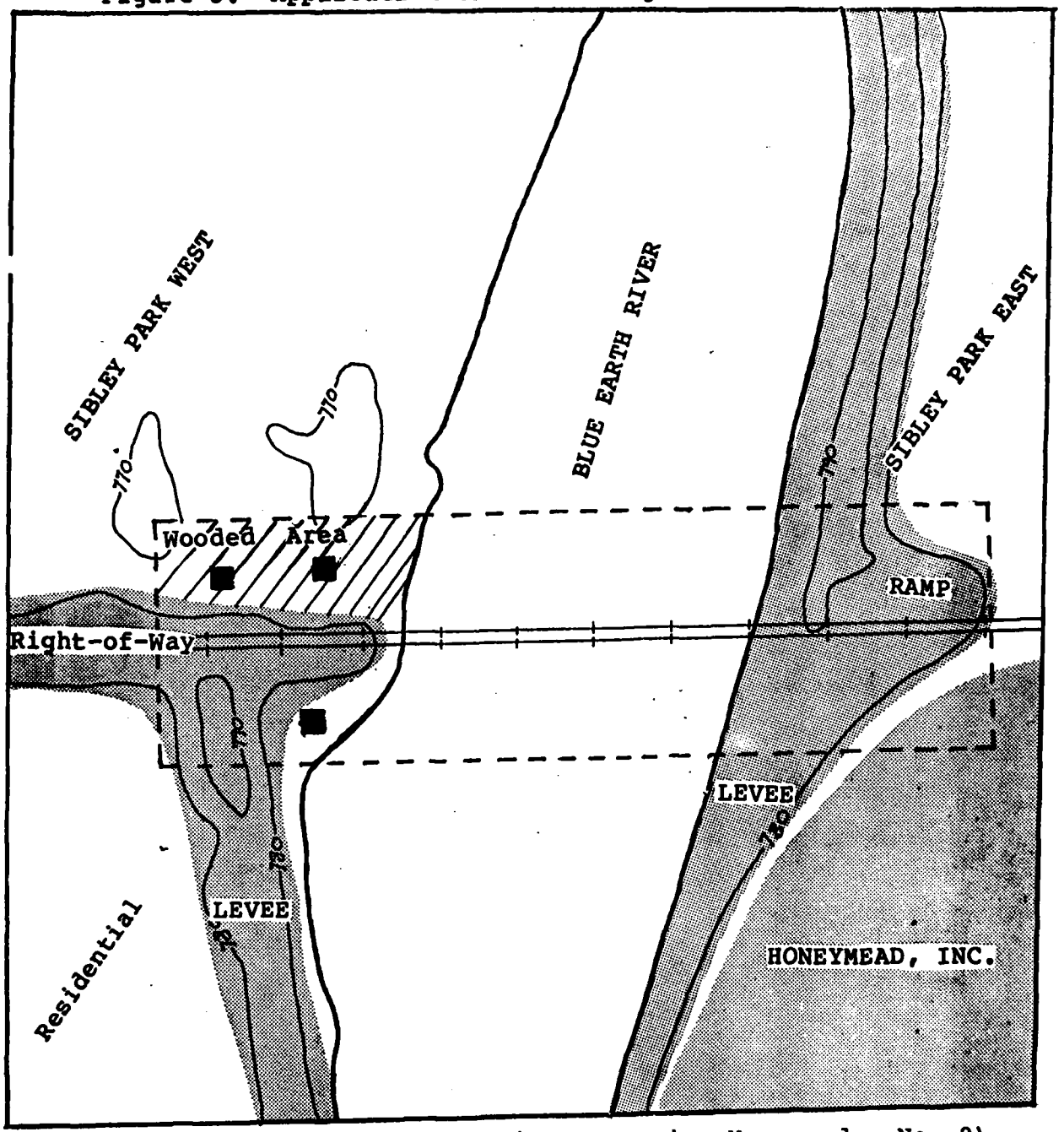
Figure 3 illustrates how the methodologies described above were applied in the project area, and identifies the areas which are severely disturbed. As can be seen, very little of the project area has not been disrupted in the past in one way or another. The railroad tracks themselves run along the top of a right-of-way which has been built up approximately 15 feet above the surrounding terrain. On the east side of the river, the railroad right-of-way is abutted on the south by Honeymead, Inc. To the north of the right-of-way lie the tennis courts and maintainence garages of Sibley Park, which is owned by the City of Mankato. In addition, a large levee has been constructed along the east bank of the river as a flood control measure.

On the west side of the river, south of the right-of-way, another levee approximately 20 feet high has been constructed. A pumping station and residential district lie just west of the levee. A dirt road, partially gravelled, runs over the top of the levee parallel to the south side of the right-of-way, turns north and goes underneath the bridge, and then branches off, running north into a wooded area as well as west along the right-of-way. The wooded area extends from the riverbank about 300 feet west to the edge of Sibley Park West, which is currently open field.

Because of the extrememly disturbed nature of the project area, the entire area was not tested at a strict interval. Instead, all available open areas were visually inspected, and shovel tests were placed in the areas that appeared the least disturbed. These tests were used not only to check for the presence of cultural material, but also to determine the extent of subsurface disturbance from past construction activities.

No testing was done on either the railroad right-of-way or the flood control levees, since these are artificial features constructed from fill. Additionally, several portions of the

Figure 3. Application of Methodologies



(Adapted from Army Corps of Engineers Design Memorandum No. 8)

Scale: 1 inch = 200 feet

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Project Area

Shovel Tests

Surface Reconnaissance

project area within Sibley Park have been paved over, making the implementation of any survey methodology rather difficult. Because of the presence of the Honeymead plant, which abuts directly on the railroad right-of-way and consists of a number of large structures, concrete walls, paved roads and parking areas, the southeast quadrant of the project area was eliminated from the survey.

The northeast portion of the project area was visually inspected to determine the extent of disturbance. The flood control levee on this side of the river includes an access ramp which slopes up from the park maintainence area to the top of the levee. This ramp abuts the railroad right-of-way on the south and park buildings on the north. The remainder of this quadrant of the project area is occupied by a park maintenance area which is partially gravelled and partially paved.

On the west side of the river, conditions were somewhat more favorable for survey. In the southwest quadrant, the length of the dirt road near the right-of-way was examined for cultural material. Surface visibility in the area between the river and the levee is less than 15% because of heavy grass cover. The natural slope of the land in this area appears to have been modified during levee construction to create a gradually decreasing grade from the top of the levee to the riverbank. One shovel test was placed between the riverbank and the levee (see Figure 3) and dug to a depth of 50 cm. Here, the sandy subsoil is overlain by a poorly-consolidated humus layer about 10 cm. deep, which appears to include fill material from levee construction. There was considerable mixing of the topsoil and the sandy layer, which also indicates disturbance of this area during levee construction.

In the northwest quadrant, both shovel testing and surface reconnaissance were employed. The dirt road near the right-of-way, which had surface visibility of about 75%, was first visually examined. The wooded area north of the road had surface visibility ranging from 50% to 80%. The entire area was visually examined, using the clearing technique explained above to increase surface visiblity wherever possible.

Two shovel tests were also done in the woods (see Figure 3), both of which were dug to a depth of 60 cm. In both, a thin (c. 5 cm.) layer of humus overlays a uniform, very sandy substratum which continued to the bottom of the shovel tests. Many irregularities in topography were noted in this area, suggesting earthmoving activities during road or railroad construction. A large basin which appears to be a fairly recent borrow pit was noted on the northern edge of the survey area. Another basin, roughly circular in shape and about 6 feet deep, was located just southwest of the borrow pit. This was partially filled with sawn timber and modern debris, and may be the remnants of a recent structure such as a construction shanty. The walls of both this basin and the borrow pit were planed with trowels and inspected. The soil stratigraphy in both was consistent with what had been

encountered in the shovel tests. The sandy subsoil could be seen to extend to a depth of at least 8 feet.

Results

No evidence of cultural resources was recovered during field examination. It is possible that there were sites in the project area at one time, but the probability is very great that any such resources have been extensively damaged or completely destroyed by one or more of the construction projects that have affected the area. Therefore, the only existing site in the immediate vicinity of the project area appears to be the previously-recorded King's Mound habitation site.

Recommendations

Based on the results of the field examination, it appears that no cultural resources remain in the project area itself which would be altered, damaged or destroyed by the proposed bridge realignment. No recommendations will therefore be made for changes in the planned modifications.

The one recorded site in Section 14, 21BE33, is located almost a quarter-mile from the present C&NW bridge. A portion of the area south of King's Mound, in what is now West Sibley Park, was examined during the 1975 survey and no additional cultural resources were located (Strachan & Roetzel 1975:54-55). Because of this, and because the proposed modifications will only affect an area immediately adjacent to the present bridge alignment, it appears that the site is in no danger of adverse impact from the construction as currently planned. However, if any alterations are made to the present bridge realignment plans, a recheck of the area would have to be done to insure that no cultural resources would be adversely affected.

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APPENDICES

SCOPE OF WORK
CULTURAL RESOURCE INVESTIGATION
OF THE CHICAGO AND NORTHWESTERN RAILROAD BRIDGE
AS PART OF THE MANKATO FLOOD CONTROL PROJECT

APPENDIX A

1.00 INTRODUCTION

1.01 The Contractor will undertake a cultural resources inventory of lands to be altered or affected by a proposed Corps of Engineers flood control project in the City of Mankato/North Mankato, Minnesota. This cultural resources inventory is in partial fulfillment of the obligations of the St. Paul District regarding cultural resources, as set forth in the Historic Preservation Act of 1966 (Public Law (P.L,) 89-665), the National Environmental Policy Act of 1969 (P.L. 91-190), Executive Order (E.O.) 11593 for the Protection and Enhancement of the Cultural Environment (Federal Register, 13 May 1971), the Archaeological Conservation Act of 1974 (P.L. 93-291), the Advisory Council on Historic Preservation's "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800), the Department of the Interior's guidelines concerning cultural resources (36 C.F.R. Part 60), and Corps of Engineers regulations (ER 1105-2-460) "Identification and Administration of Cultural Resources" (Federal Register, 3 April 1978).

1.02 The laws mentioned above establish the importance of Federal leadership, by the various responsible agencies, in locating and preserving cultural resources within project areas. Specific steps to comply with these laws, particularly as directed in P.L. 93-291 and E.O. 11593, are being taken by the Corps "...to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural, or archaeological significance." A part of that responsibility is to locate, inventory, and nominate to the Secretary of the Interior all such sites in the project area that appear to qualify for listing on the National Register of Historic Places.

1.03 The Executive Order further directs Federal agencies "...to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished or substantially altered." In addition, the Corps is directed to administer its policies, plans, and programs in such a way that federally and non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved and maintained for the inspiration and benefit of the people.

1.04 This cultural resources investigation will serve several functions. The report will be a planning tool to aid the Corps in meeting its obligations to preserve and protect our cultural heritage. It will be a comprehensive, scholarly document that not only partially fulfills federally mandated legal requirements but also serves as a scientific reference for future professional studies. It will identify sites which may require additional investigations and which may have potential for public-use development. Thus, the report's content must be analytical in nature, not just descriptive.

2.00 PROJECT DESCRIPTION

2.01 The City of Mankato is located in southcentral Minnesota at the confluence of the Blue Earth and Minnesota Rivers. The bridge alterations in the Mankato area on the Trunk Highway (TH) 60, TH 169, and Chicago and Northwestern Railroad (C&NWRR) bridges are part of an overall flood control project approved by Congress in 1958. The majority of this flood control project has been completed, with only the bridge alterations remaining.

2.02 The project areas include modifications to the following bridges:

a. TH 60 - Main St. Bridge over the Minnesota River.

b. TH 169 - Bridge over the Blue Earth River.

c. C&NWRR - Bridge over the Blue Earth River.

3.00 DEFINITIONS

3.01 For the purpose of this study, the cultural resources investigation will include a literature and records review, a Phase I on-the-ground reconnaissance level survey, and Phase II testing.

3.02 "Cultural resources" are defined to include any building, site, district, structure, object, data, or other material relating to the history, architecture, archaeology, or culture of an area.

3.03 "Literature search" is defined as an examination and review of written reports, books, articles, etc., published and unpublished, which are pertinent to the cultural resources investigation to be carried out for a particular project. The purpose of the literature search is to familiarize the Contractor with the cultural history of the study area and past investigations which have been carried out in the area, and to provide this information in a summarized form to the agency requesting the search. While the existing data could be extensive, the literature search should be as comprehensive as possible in providing a usable body of data for the purposes outlined above.

3.04 "Records review" is defined as the examination and review of records, files, etc., which are maintained by various local and State agencies. The purpose of the records review is to document the location of known sites which may exist within the project area, their condition, the extent of past work undertaken at the site, and any other information which may be relevant in assessing the significance of the site.

3.05 "Phase I cultural resources survey" is defined as an intensive, on-the-ground survey and testing of an area sufficient to determine the number and extent of the resources present and their relationship to project features. A Phase I cultural resources survey will result in data adequate to assess the general nature of the sites present; a recommendation for additional testing of those resources which, in the professional opinion of the Principal Investiga may provide important cultural and scientific information; and detailed ti e and cost estimates for Phase II testing.

3.06 "Phase II testing" is defined as the intensive testing of those sites which may provide important cultural and scientific information. Phase II testing will result in data adequate to determine the eligibility of the resources for inclusion on the National Register of Historic Places, a plan for the satisfactory mitigation of eligible sites which will be directly or indirectly impacted, and detailed time and cost estimates for mitigation.

4.00 STUDY AREA

4.01 The literature search and records review will be concerned with the prehistoric and historic archaeological resources within the area of the C&NWRR Bridge Alternate 3B as shown on the inclosed maps (Plates A-5, A-6, and A-7).

4.02 Phase I surveys will be conducted in the area of the C&NWRR Bridge Alternate 3B as shown on the inclosed maps (Plates A-5, A-6, and A-7).

4.03 Phase II testing will be conducted on those sites found within the above alignment that may provide important cultural and scientific information.

5.00 PERFORMANCE SPECIFICATIONS

5.01 The Contractor will utilize a systematic, interdisciplinary approach in conducting the study. The Contractor will provide specialized knowledge and skills during the course of the study to include expertise in archaeology and other social and natural sciences as required. Personnel involved with the work under this contract must meet the minimum professional qualifications outlined in Appendix B.

5.02 The extent and character of the work to be accomplished will be subject to the general supervision, direction, control, and approval of the Contracting Officer.

5.03 Techniques and methodologies used during the investigation shall be representative of the current state of knowledge for their respective disciplines.

5.04 The Contractor shall keep standard field records which shall include, but not be limited to, field notebooks, site survey forms, field maps, and photographs.

5.05 The tested areas will be returned as closely as practical to presurvey conditions.

5.06 The recommended professional treatment of recovered materials is curation and storage of the artifacts at an institution that can properly insure their preservation and that will make them available for research and public view. If such materials are not in Federal ownership, the consent of the owner must be obtained, in accordance with applicable law, concerning the disposition of the materials after completion of the report. The Contractor will be responsible for making curatorial arrangements for any collections which are obtained. Such arrangements must be coordinated with the appropriate officials of Minnesota and approved by the Contracting Officer.

5.07 Should it become necessary in the performance of the work and services, the Contractor shall, at no cost to the Government, secure the rights of ingress and egress on properties not owned or controlled by the Government. The Contractor shall secure the consent of the owner, his representative, or agent, in writing prior to effecting entry on such property. If requested, a letter of introduction, signed by the District Engineer, can be provided to explain the project purposes and request the cooperation of landowners. Where a landowner denies permission for survey, the Contractor shall immediately notify the Contracting Officer and shall describe the extent of the property to be excluded from the survey.

5.08 When sites are not wholly contained within the right-of-way limits, the Contractor shall survey an area outside the right-of-way limits large enough to include the entire site within the survey area. This procedure shall be done in an effort to delineate site boundaries and to determine the degree to which the site will be impacted.

Literature Search

5.09 Information and data for the literature search and records review will be obtained from, but not limited to, the following sources:

a. Published and unpublished reports and documents such as books, journals, theses, dissertations, manuscripts, newspapers, W.P.A. reports, surveyors' maps and notes, early atlases, and missionary records.

b. Site files and other information held at the Minnesota Historical Society; the State Archaeologist's Office; the University of Minnesota Department of Anthropology and libraries; and materials available from the Nicollet and Blue Earth County Historical Societies and other local historical societies.

c. The Contractor will obtain from the State Historic Preservation Office information regarding any cultural resources in the project area that have been nominated or are being considered for nomination to the National Register of Historic Places.

d. Consultations with other professionals familiar with cultural resources in the area.

e. Consultations with amateur archaeologists and individuals concerned with local history in order to locate sites and to identify and define local interests and resources perceived to be locally significant.

5.10 A study and evaluation of previous archaeological studies of the region, including the date, extent, and adequacy of the past work as it reflects on the interpretation of what has been done in the area should be undertaken and summarized in the report.

5.11 The literature search should include a listing of all sites (historic and prehistoric) identified during the course of the study and an evaluation of the impact upon them of the proposed project.

Phase I Survey

5.12 The on-the-ground examination will be a reconnaissance level survey and shovel testing of the area of sufficient intensity to determine the number and extent of cultural resources present. This includes historical and prehistorical archaeological sites.

5.13 An attempt will be made to locate in the field all resources previously recorded or noted in the literature that are located in the project area, as described in Section 4.01, and that may be impacted by the proposed project and to report their condition.

5.14 The survey shall include surface inspection in areas where surface visibility permits adequate recovery of cultural materials and subsurface testing where surface visibility is limited. Subsurface investigation may include test pits, corings, or cut bank profiles where appropriate.

5.15 The recommended grid or transect interval is 15 meters (50 feet). However, this interval may vary depending upon field conditions. If the recommended interval is not used, justification should be presented for selection of an alternate interval. All tests will be screened through 1/4-inch mesh.

6.00 GENERAL REPORT REQUIREMENTS

6.01 Upon completion of field work, the Contractor will submit to the Contracting Officer a brief report detailing the work accomplished. Upon completion of all field investigations and research, the Contractor shall prepare a technical report detailing the work done, the results, and the recommendations for testing and associated time and cost estimates for those resources found to have potential for the National Register.

6.02 The technical report shall include, but not be limited to, the following sections. These sections do not necessarily need to be discrete sections; however, they should be readily discernable to the reader.

a. Title Page: The title page should provide the following information: the type of survey undertaken (reconnaissance, intensive); the cultural resources assessed (archaeological, historical, architectural); the project name and location (county and State); the date of the report; the Contractor's name; the contract number; the name of the author(s) and/or Principal Investigator; the signature of the Principal Investigator; and the agency for which the report is being prepared.

b. Administrative Summary: The summary will be a synopsis of the report, defining the project area and the level of the cultural resources investigation. It shall summarize the research objectives and problems, methods, numbers, and types of resources identified, the significant recommendations and any unusual or innovative findings or techniques developed during the course of the investigation. Because this information will serve both as an administrative summary and as a portion of that information required by the Department of the Interior for its annual report to Congress (pursuant to Section 5.c. of the Reservoir Salvage Act as amended), the summary should be as detailed and succinct as possible. Normally, the summary will not exceed one typewritten page.

c. Table of Contents.

d. Introduction: This section should include the purpose of the report; a description of the proposed project; the location of the proposed project, including a map of the general area; and a project map (a list of USGS quadrangle maps which cover the project area should also be included); and the dates during which the field survey was conducted. The introduction shall also contain the name of the institution where recovered materials will be curated.

e. Environmental Setting: This section should contain a brief description of the environment of the study area, both present and past conditions, and it should be of a length commensurate with other sections of supporting type information.

f. Literature Search: This section should detail the sources used for the literature search and records review as well as a description of all information encountered. Bibliographic information should also be included at the end of the report.

g. Field Methods: This section should give an explicit statement of testing and survey methods and rationale. It should describe the areas which were surveyed (types of ground cover, degree of surface visibility, etc.) whether or not the survey resulted in the location of any cultural resources, the methods used to survey the area (pedestrian reconnaissance, subsurface test, etc.), the rationale for eliminating uninvestigated areas, the estimated size of the investigated sample and its relationship to the sample universe (e.g., 100 acres representing 15 percent of the project impact area), and the grid of transect interval used. Testing methods should include descriptions of test units (size, intervals, depth) and the rationale for their placement.

h. Laboratory Methods: This section should explain in detail the laboratory methods employed and the rationale for the method selected. This section should also contain references to accession numbers used for all collections, photographs, and field notes obtained during the study, and the location where they are permanently housed.

i. Summary of Regional Prehistory and History: This section should discuss the regional cultural developments in their spatial and chronological position.

j. Investigation Results: This section should describe the prehistoric and historic archaeological resources encountered in the literature search and survey, with each site discussed as a separate unit. The site description should include the size of the site, type of site (i.e., historic dwelling, prehistori village, mound group, etc.); the cultural component(s) of the site (if discernable); and the general nature of the site as it existed at the time of the survey. An inventory of cultural material recovered from sites may be included in this section or added to the site survey forms. Accession numbers for collected cultural material should be included as a part of the inventory. Inventoried sites shall include a site number. Official site designations assigned by an appropriate State agency are preferred. However, if temporary site numbers will be used in either the draft or final reports, they shall be substantially different from the official site designations to avoid confusion or duplication of site numbers.

k. Recommendations: This section should discuss the direct and indirect impacts that the proposed project will have on cultural resources. For those sites encountered, the Contractor shall make recommendations for the adequate assessments of those sites considered to have potential for eligibility to the National Register of Historic Places. This assessment will proceed to the level described in paragraph 3.06. These recommendations should include a time and cost estimate. If it is the Contractor's assessment that no significant resources exist in the project areas, the methods of investigation and reasoning which support that conclusion will be presented. If certain areas are not accessible, recommendations will be made for future consideration. If it is found that significant resources do exist in the area, the report will describe the information recovered, and where the resources were located, and will assess the extent and potential of the recovered information. Any evidence of cultural resources or materials which have been previously disturbed or destroyed will be presented and explained.

l. References: All references must follow American Antiquity format.

m. Appendix: This section should contain the Scope of Work and the resumes of the Principal Investigator and crew along with all photographs. State site forms shall also be included as an appendix.

n. All sites identified in the course of the study, including find spots and known sites, will be presented on State site forms as an appendix to the report. Data should also be provided about the present condition of the sites (disturbance by natural or manmade processes) and content of any collections from the sites. Known sites shall have their State site forms updated as necessary. All State site forms will be submitted to the State Archaeologist.

o. The location of all sites and other features discussed in the text will be shown on 8.5 by 11 inch legibly photocopied USGS map sections and will be bound into the report. Project maps shall also be included as part of contract correspondence showing the relationship of sites to the project areas. Maps should also show the type of survey method employed for each area surveyed (example, pedestrian walkover, shovel tests) and formal test pits, if applicable. All maps will be labeled with a description, a north arrow, a scale bar, township and range (on USGS maps only), and the map source (e.g., the USGS quad name or published source).

p. Failure to fulfill these report requirements will result in the rejection of the report by the Contracting Officer.

7.00 FORMAT SPECIFICATIONS

7.01 Text materials will be typed (single-spaced or space-and-a-half) on good quality bond paper, 8.5 inches by 11.0 inches, with a 1.5-inch binding margin on the left, 1-inch margins on the top and right, and a 1.5-inch margin at the bottom. The report will be printed on both sides of the paper.

7.02 Information will be presented in textual, tabular, and graphic forms, whichever are most appropriate, effective, or advantageous to communicate the necessary information.

7.03 All figures must be readily reproducible by standard xerographic equipment.

7.04 Negatives of all black and white photographs contained in the final report must be included so that copies for distribution can be made.

8.00 SUBMITTALS

8.01 The Contractor will submit reports according to the following schedules:

a. Brief Field Report: The original and one copy will be submitted upon completion of field work.

b. Draft Final Report: The original and 5 copies will be submitted calendar days after contract award. The Contracting Officer will provide the Contractor with comments on this draft report.

c. Revised Final Report: The original and 15 copies will be submitted 60 calendar days after receipt of comments by the Contractor. This final report will include appropriate revisions in response to the Contracting Office.'s comments.

8.02 The Contractor shall not release any sketch, photograph, report, or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer prior to the acceptance of the final report by the Government.

9.00 METHOD OF PAYMENT

9.01 Requests for partial payment under this fixed price contract shall be made monthly on ENG Form 93. A 10-percent retained percentage will be withheld from each partial payment. Upon approval of the final reports by the Contracting Officer, final payment, including previously retained percentage, shall be made.

VITA

PERSONAL DATA

Name: Patricia Mary Emerson Birthday: January 25, 1953
Marital Status: Single Telephone: 507-625-1183 H
507-243-3657 O

Address: 339-1/2 Jefferson Avenue
North Mankato, Minnesota 56001

EDUCATION

M.S. in Continuing Studies-Archaeology from Mankato State University - May, 1981.
B.A. in Anthropology from Hamline University - June, 1974.

CURRENT POSITION

Research Archaeologist, Impact Services, Inc.
Adjunct Faculty, Department of Sociology, Mankato State University.

FIELD EXPERIENCE

Field Supervisor: Cultural Resource Survey of the Proposed Chicago & Northwestern Railroad Bridge, Blue Earth County, Minnesota. Summer 1981.

Field Supervisor: Cultural Resource Survey of the Cannon River Park, Le Sueur County, Minnesota. Winter 1981.

Field Supervisor: Cultural Resource Survey of Stoney Point Park, Lincoln County, Minnesota. Winter 1981.

Field Supervisor: Cultural Resource Survey of Rasmussen Woods/ Indian Creek Slough, Blue Earth County, Minnesota. Fall 1980.

Field Supervisor: Cultural Resource Survey of Clear Lake Park, Jackson County, Minnesota. Summer 1980.

Field Supervisor: Archaeological Survey and Site Testing at Maquoketa Caves State Park, Jackson County, Iowa. Spring-Summer 1980.

Field Supervisor: Archaeological Reconnaissance Survey of the Louisa Transmission Circuits 345-56-93-H-1 and 345-93-H-T-1 and Substations T and 92, Muscatine, Louisa and Washington Counties, Iowa. Summer 1980.

Crew Member: The Cultural Resources Survey of the Proposed Channel Realignment Area at Big Stone-Whetstone Flood Control

Project, Big Stone and Lac Qui Parle Counties, Minnesota. Summer 1980.

Crew Member: The Cultural Resource Investigation of the Wild Rice River - South Branch and Felton Ditch Flood Control Project Area, Clay and Norman Counties, Minnesota. Fall 1979.

Assistant Naturalist: Blue Mounds State Park, Rock County, Minnesota. Summer 1979.

Crew Member: Intensive Archaeological Reconnaissance and Site Testing, Harlan County Lake, Harlan County, Nebraska. Summer 1979.

Crew Member: Archaeological Survey of Helmer Myre State Park, Freeborn County, Minnesota. Summer 1978.

Assistant Field Supervisor: Salvage Excavation of the Silvernale Site, Goodhue County, Minnesota. Summer-Fall 1977.

Assistant Field Supervisor: Salvage Excavation of the Silvernale Site, Goodhue County, Minnesota. Summer-Fall 1976.

Crew Member: Salvage Excavation of the Silvernale Site, Goodhue County, Minnesota. Summer-Fall 1975.

Crew Member: Excavation of the Oliver H. Kelley Farmstead, Sherburne County, Minnesota. Fall 1972.

LABORATORY EXPERIENCE

Laboratory Supervisor: Mankato State University Museum of Anthropology. Fall 1980 through Spring 1981.

Analysis of Material and Report Preparation from the Site Survey and Testing of Harlan County Lake, Republican River, Nebraska. Winter 1980.

Analysis of Material and Report Preparation from the Site Survey and Testing of Maquoketa Caves State Park, Jackson County, Iowa. Summer 1980.

Analysis of Material from the Archaeological Excavation of the Eleanor Site (21NL30), Nicollet County, Minnesota. Fall-Winter 1979.

Analysis of Material and Report Preparation from the Archaeological Survey of Helmer Myre State Park, Freeborn County, Minnesota. Fall 1978.

Analysis of Material and Report Preparation from the Archaeological Excavation at Oliver H. Kelley Farmstead, Sherburne County, Minnesota. Winter 1973.

PUBLICATIONS AND MANUSCRIPTS

A Multivariate Predictive Model for Archaeological Site Location. Master's Paper, Mankato State University.

Archaeological Survey of Helmer Myre State Park, Freeborn County, Minnesota. With Richard A. Strachan, Laurie Mulcahy, Amy Welch, Leann Rudenick and Lana Siriyuvasakdi. To be completed Spring, 1981.

Intensive Archaeological Reconnaissance and Site Testing for the National Register of Historic Places, Harlan County, Nebraska. Volume I: Technical Report. With Kathleen A. Roetzel, Richard A. Strachan and Wanda A. Watson. Winter 1980/1981.

Intensive Archaeological Reconnaissance and Site Testing for the National Register of Historic Places, Harlan County, Nebraska. Volume II: Documentation. With Kathleen A. Roetzel, Richard A. Strachan and Wanda A. Watson. Winter 1980/1981.

Research Design for Analysis of Palynological and Floral Materials from Archaeological Contexts Using the Scanning Electron Microscope. Manuscript on File, Mankato State University Museum of Anthropology. Fall 1980.

Prehistoric Agriculture in Eastern North America. Manuscript on File, Mankato State University Museum of Anthropology. Fall 1980.

An Archaeological, Architectural-Historical, and Geomorphological Survey at Maquoketa Caves State Park, Jackson County, Iowa. Volume I: Technical Report. With Kathleen A. Roetzel, Richard A. Strachan, Michael A. Eigen and Robert Douglas. Summer 1980.

An Archaeological, Architectural-Historical, and Geomorphological Survey at Maquoketa Caves State Park, Jackson County, Iowa. Volume II: Documentation. With Kathleen A. Roetzel, Richard A. Strachan, Michael A. Eigen and Robert Douglas. Summer 1980.

An Archaeological, Architectural-Historical, and Geomorphological Survey at Maquoketa Caves State Park, Jackson County, Iowa. Volume III: Popular Report. With Kathleen A. Roetzel, Richard A. Strachan, Michael A. Eigen and Robert Douglas. Summer 1980.

A Proposal for an Archaeological Para-Professional Certification Program for the State of Minnesota. With Lota Lou Emery, Karen A. Gill, and Audrey Thomas. Paper presented to the Council for Minnesota Archaeology. Fall 1976.

Report on the Excavation of the Oliver H. Kelley Farmstead, Sherburne County, Minnesota. With Vernon R. Helmen. Report submitted to the Minnesota Historical Society. Winter 1973.

TEACHING EXPERIENCE

Instructor (Sessional): Department of Sociology, Mankato State University. Winter 1980.

Instructor (Sessional): Department of Sociology, Mankato State University. Winter 1979.

ASSISTANTSHIPS

Graduate Assistant: Department of Sociology, Mankato State University. Fall 1980 through Spring 1981.

AREAS OF INTEREST

Upper Midwest Archaeology, Statistical/Computer Applications in Archaeology, Cultural Resource Management, Archaeological Field Methodology, Paleoecology.

PROFESSIONAL MEMBERSHIPS

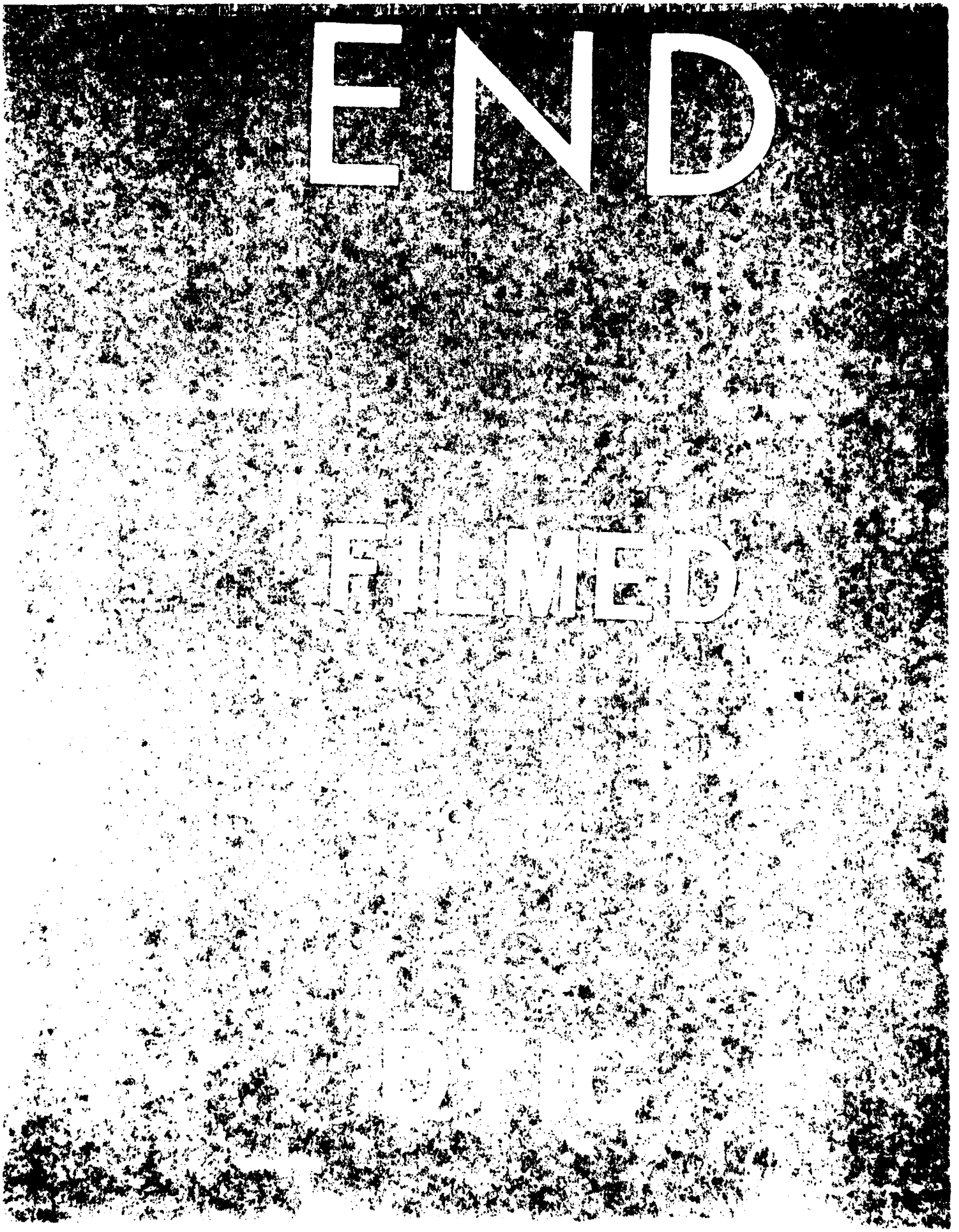
Society for American Archaeology
American Anthropological Association
Smithsonian Institution

REFERENCES

Kathleen A. Roetzel
President, Impact Services Inc.
P.O. Box 3224
Mankato, Minnesota

Richard A. Strachan
Professor of Anthropology
Director, Museum of Anthropology
Mankato State University
Mankato, Minnesota

Stanley Riggle
Assistant State Historic Preservation Officer
State Historic Preservation Office
Iowa City, Iowa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